

1/17

SEQUENCE LISTING

<110> Viventia Biotech Inc.

<120> ENHANCED PHAGE DISPLAY LIBRARIES AND METHODS FOR
PRODUCING SAME

<130> 33956-49

<140> US10/070,503

<141> 2000-09-07

<150> PCT/CA00/01027

<151> 2000-09-07

<150> CA2282179

<151> 1999-09-07

<150> US60/163,546

<151> 1999-11-04

<160> 60

<170> PatentIn Ver. 2.1

<210> 1

<211> 396

<212> DNA

<213> human

<400> 1

```

gaggtccagc tgcaggagtc tgggggaggc ttagtccagc ctgggggggc cctgagactc 60
tctgttcag cctctggatt caccttcagt agctatgcta tgcactgggt ccgccaggct 120
ccaggggaagg gactggaata tgtttcagct attagtagta atgggggtag cacatactac 180
gcagactccg tgaagggcag attcaccatc tccagagaca attccaagaa cactctgtat 240
cttcaaata gaagctctgag agctgaggac acggctgtgt attactgtgt gaaagacagg 300
ttaaaagtgg agtactatga tagtagtggt tattacgttt ctcggttcgg tgcttttgat 360
atctggggcc aagggacaac ggtcaccgtc tcatca 396

```

<210> 2

<211> 132

<212> PRT

<213> human

<400> 2

```

Glu Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1             5             10             15
Ser Leu Arg Leu Ser Cys Ser Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20             25             30
Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Val
 35             40             45
Ser Ala Ile Ser Ser Asn Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50             55             60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65             70             75             80

```

Leu Gln Met Ser Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Val Lys Asp Arg Leu Lys Val Glu Tyr Tyr Asp Ser Ser Gly Tyr Tyr
 100 105 110

Val Ser Arg Phe Gly Ala Phe Asp Ile Trp Gly Gln Gly Thr Thr Val
 115 120 125

Thr Val Ser Ser
 130

<210> 3
 <211> 5
 <212> PRT
 <213> human

<400> 3
 Ser Tyr Ala Met His
 1 5

<210> 4
 <211> 16
 <212> PRT
 <213> human

<400> 4
 Ala Ile Ser Ser Asn Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val Lys
 1 5 10 15

<210> 5
 <211> 23
 <212> PRT
 <213> human

<400> 5
 Asp Arg Leu Lys Val Glu Tyr Tyr Asp Ser Ser Gly Tyr Tyr Val Ser
 1 5 10 15

Arg Phe Gly Ala Phe Asp Ile
 20

<210> 6
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<220>
 <221> variable residue
 <222> (16)
 <223> The nucleotide at this position may be a or c

<220>
 <221> variable residue
 <222> (17)
 <223> The nucleotide at this position may be a, c, t or g

<220>
 <221> variable residue
 <222> (18)
 <223> The nucleotide at this position may be a, c, t or g

<220>
 <221> variable length
 <222> (16)...(18)
 <223> The nucleotides at these positions may be repeated

<400> 6
 gccccagata tcaaannntt tcacacagta ata 33

<210> 7
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 7
 tgttcagcta gcggattc 18

<210> 8
 <211> 42
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 8
 tgaggagacg gtgaccggtg tcccttggcc ccagatatca aa 42

<210> 9
 <211> 38
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 9
 catgaccaca gtgcacagga ggtccagctg caggagtc 38

<210> 10
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

<400> 10

tttcacacag taatacac

18

<210> 11

<211> 57

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

<400> 11

cgattctgcg gccgctgagg agacggtgac cgttgtccct tggccccaga tatcaaa 57

<210> 12

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

<220>

<221> variable residue

<222> (18)

<223> The nucleotide at this position may be a or c

<220>

<221> variable residue

<222> (19)

<223> The nucleotide at this position may be a, g, t or c

<220>

<221> variable residue

<222> (20)

<223> The nucleotide at this position may be a, g, t or c

<220>

<221> variable length

<222> (18)...(20)

<223> The nucleotides at these positions may be repeated

<400> 12

gttgtccctt ggccccannn tttcacacag taata

35

<210> 13

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

<400> 13

actttcttgt aattggacct cggcctgcgc

30

<210> 14
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 14
 ctctcctgtg ctgcctctgg a

21

<210> 15
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 15
 tccagaggca gcacaggaga g

21

<210> 16
 <211> 54
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 16
 cgcacagtaa tacacagccg tgcctcagc ttcagactg ttcatttgaa gata

54

<210> 17
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 17
 gtgtattact gtgcgaaaga cagg

24

<210> 18
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 18

caattacaag ctagtggtgg c

21

<210> 19
 <211> 39
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 19
 tatggatcct gaggagacgg tgacctgtgt cccttggcc

39

<210> 20
 <211> 38
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 20
 catgaccaca gtgcacagga ggtccaatta caagaaag

38

<210> 21
 <211> 42
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<220>
 <221> variable residue
 <222> (22)
 <223> The nucleotide at this position may be a or c

<220>
 <221> variable residue
 <222> (23)
 <223> The nucleotide at this position may be a, g, t or c

<220>
 <221> variable residue
 <222> (24)
 <223> The nucleotide at this position may be a, g, t or c

<220>
 <221> variable length
 <222> (22)...(24)
 <223> The nucleotides at these positions may be repeated

<400> 21
 cccttggtccc cagatatcaa annntttcgc acagtaatac ac

42

<210> 22

<211> 54
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 22
 cgattctgcg gccgctgagg agacggtgac ctgtgtccct tggccccaga tatc 54

<210> 23
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 23
 gcggataaca atttcacaca ggaa 24

<210> 24
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 24
 cgccagggtt ttcccagtca cgac 24

<210> 25
 <211> 59
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 25
 gaggtccaat tacaagctag tgggtggcgga ctggtgcaac cagagggtcc ctgagactc 59

<210> 26
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 26
 atcgcagttg cactggctgg ttctgctacc gttgcggagg ccgagggtcca attacaaagct 60

<210> 27

<211> 54
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 27
 tagagggtag aattcatgaa aaaaaccgct atcgcgatcg cagttgcact ggct 54

<210> 28
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 28
 tatggatcct gaggagacgg tgaccgt 27

<210> 29
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 29
 tatgaagaca ccaggccgag gtccagctgc aggag 35

<210> 30
 <211> 66
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 30
 agcctggcgg acccagtgca tagcatagct actgaagggtg aatccgctag ctgaacagga 60
 gagtct 66

<210> 31
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 31
 ccagggtttt cccagtcacg ac 22

<210> 32
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 32
 tgggtccgcc aggctccagg gaaggaacgt gaaggtgttt cagctattag t 51

<210> 33
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 33
 tgttcagcta gcggattcac cttcagtagc tattgtatgc actgggtccg c 51

<210> 34
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 34
 tgctgcacag taatacacag ccgt 24

<210> 35
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 35
 cgattctgcg gccgctgagg agacggtgac cgttg 35

<210> 36
 <211> 396
 <212> DNA
 <213> human (modified)

<400> 36
 gaggtccagc tgcaggagtc tgggggaggc ttagtccagc ctgggggggtc cctgagactc 60
 tcctgtttcag ctacgcgatt caccttcagt agctatgcta tgcactgggt ccgccaggct 120
 ccagggaagg aacgtgaagg tgtttcagct attagtagta atgggggtag cacatactac 180
 gcagactccg tgaagggcag attcaccatc tccagagaca attccaagaa cactctgtat 240
 cttcaaata gaagctctgag agctgaggac acggctgtgt attactgtgc agcagacagg 300
 ttaaaagtgg agtactatga tagtagtggt tattacgttt ctcggttcgg tgcttttgat 360

atctggggcc aagggaacaac ggtcaccgtc tcatca

396

<210> 37
 <211> 132
 <212> PRT
 <213> human (modified)

<400> 37
 Glu Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ser Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Glu Arg Glu Gly Val
 35 40 45
 Ser Ala Ile Ser Ser Asn Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Ser Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Ala Asp Arg Leu Lys Val Glu Tyr Tyr Asp Ser Ser Gly Tyr Tyr
 100 105 110
 Val Ser Arg Phe Gly Ala Phe Asp Ile Trp Gly Gln Gly Thr Thr Val
 115 120 125
 Thr Val Ser Ser
 130

<210> 38
 <211> 396
 <212> DNA
 <213> human (modified)

<400> 38
 gaggtccaat tacaggaaag tgggtggcga ctggtgcaac caggaggatc cctgagactc 60
 tcctgttcag cctctggatt caccttcagt agctatgcta tgcactgggt ccgccaggct 120
 ccagggaagg gactggaata tgtttcagct attagtagta atgggggtag cacatactac 180
 gcagactccg tgaagggcag attcaccatc tccagagaca attccaagaa cactctgtat 240
 cttcaaatga gcagtctgag agctgaggac acggctgtgt attactgtgt gaaagacagg 300
 ttaaaagtgg agtactatga tagtagtggt tattacgttt ctcggttcgg tgcttttgat 360
 atctggggcc aagggaacaac ggtcaccgtc tcatca 396

<210> 39
 <211> 132
 <212> PRT
 <213> human (modified)

<400> 39
 Glu Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ser Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30

Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Val
 35 40 45

Ser Ala Ile Ser Ser Asn Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80

Leu Gln Met Ser Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Val Lys Asp Arg Leu Lys Val Glu Tyr Tyr Asp Ser Ser Gly Tyr Tyr
 100 105 110

Val Ser Arg Phe Gly Ala Phe Asp Ile Trp Gly Gln Gly Thr Thr Val
 115 120 125

Thr Val Ser Ser
 130

<210> 40
 <211> 396
 <212> DNA
 <213> human (modified)

<400> 40
 gaggtccaat tacaggaaag tgggtggcga ctgggtgcaac caggaggatc cctgagactc 60
 tctgtttcag ctacgggatt caccttcagt agctatgcta tgcactgggt ccgccaggct 120
 ccagggaagg aacgtgaagg tgtttcagct attagtagta atgggggtag cacatactac 180
 gcagactccg tgaagggcag attcaccatc tccagagaca attccaagaa cactctgtat 240
 cttcaaatga gcagtctgag agctgaggac acggctgtgt attactgtgc agcagacagg 300
 ttaaaagtgg agtactatga tagtagtggt tattacgttt ctcggttcgg tgcttttgat 360
 atctggggcc aagggacaac ggtcaccgtc tcatca 396

<210> 41
 <211> 132
 <212> PRT
 <213> human (modified)

<400> 41
 Glu Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ser Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30

Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Glu Arg Glu Gly Val
 35 40 45

Ser Ala Ile Ser Ser Asn Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr

65		70		75		80									
Leu	Gln	Met	Ser	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
			85						90					95	
Ala	Ala	Asp	Arg	Leu	Lys	Val	Glu	Tyr	Tyr	Asp	Ser	Ser	Gly	Tyr	Tyr
			100					105					110		
Val	Ser	Arg	Phe	Gly	Ala	Phe	Asp	Ile	Trp	Gly	Gln	Gly	Thr	Thr	Val
		115					120					125			
Thr	Val	Ser	Ser												
	130														

<210> 42
 <211> 396
 <212> DNA
 <213> human (modified)

<400> 42
 gaggtccagc tgcaggagtc tgggggaggc ttagtccagc ctgggggggtc cctgagactc 60
 tcctgttcag cctctggatt caccttcagt agctattgta tgcactgggt ccgccaggct 120
 ccaggggaagg aacgtgaagg tggttcagct attagtagta atgggggtag cacatactac 180
 gcagactccg tgaagggcag attcaccatc tccagagaca attccaagaa cactctgtat 240
 cttcaaatga gcagtctgag agctgaggac acggctgtgt attactgtgc agcagacagg 300
 ttaaaagtgg agtactatga tagttgcggt tattacgttt ctcggttcgg tgcttttgat 360
 atctgggggcc aagggacaac ggtcaccgtc tcatca 396

<210> 43
 <211> 132
 <212> PRT
 <213> human (modified)

<400> 43
 Glu Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ser Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Cys Met His Trp Val Arg Gln Ala Pro Gly Lys Glu Arg Glu Gly Val
 35 40 45
 Ser Ala Ile Ser Ser Asn Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Ser Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Ala Asp Arg Leu Lys Val Glu Tyr Tyr Asp Ser Cys Gly Tyr Tyr
 100 105 110
 Val Ser Arg Phe Gly Ala Phe Asp Ile Trp Gly Gln Gly Thr Thr Val
 115 120 125

Thr Val Ser Ser
130

<210> 44
<211> 396
<212> DNA
<213> human (modified)

<400> 44
gaggtccaat tacaggaaag tgggtggcga ctggtgcaac caggaggatc cctgagactc 60
tcctgttcag ctagcggatt caccttcagt agctatgcta tgcactgggt ccgccaggct 120
ccagggaagg gactggaata tgtttcagct attagtagta atgggggtag cacatactac 180
gcagactccg tgaagggcag attcaccatc tccagagaca attccaagaa cactctgtat 240
cttcaaata gaagctctgag agctgaggac acggctgtgt attactgtgt gaaagacagg 300
ttaaagtggt agtactatga tagtagtggt tattacgttt ctcggttcgg tgcttttgat 360
atctggggcc aagggacaac gggtaccgct tcacatca 396

<210> 45
<211> 132
<212> PRT
<213> human (modified)

<400> 45
Glu Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ser Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30
Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Val
35 40 45
Ser Ala Ile Ser Ser Asn Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80
Leu Gln Met Ser Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Val Lys Asp Arg Leu Lys Val Glu Tyr Tyr Asp Ser Ser Gly Tyr Tyr
100 105 110
Val Ser Arg Phe Gly Ala Phe Asp Ile Trp Gly Gln Gly Thr Thr Val
115 120 125
Thr Val Ser Ser
130

<210> 46
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:recombinant

A6-derived peptide

<400> 46

Val	Gln	Tyr	Gly	Lys	His	Arg	Arg	Gly	Ser	Cys	Ile	Glu	Val	His	Pro
1				5				10						15	

Glu	Tyr	Lys	Asp	Phe	Asp	Ile
			20			

<210> 47

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:recombinant
A6-derived peptide

<400> 47

Asn	Pro	Pro	Lys	Pro	Gly	Ala	Gln	Ala	Arg	Cys	Val	Thr	Thr	Val	Lys
1				5				10						15	

Asp	Tyr	Lys	Glu	Phe	Asp	Ile
			20			

<210> 48

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:recombinant
A6-derived peptide

<400> 48

Ala	Ala	Ile	Gln	Thr	Glu	Thr	Ala	Arg	Trp	Cys	Asp	Arg	His	Pro	Val
1				5				10						15	

Ser	Tyr	Lys	Met	Phe	Asp	Ile
			20			

<210> 49

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:recombinant
A6-derived peptide

<400> 49

Gln	Thr	Glu	Thr	Gln	Pro	Leu	Tyr	Asn	Asp	Cys	Ile	Leu	Arg	Gln	Ala
1				5				10						15	

Gly	Tyr	Lys	Trp	Phe	Asp	Ile
			20			

<210> 50
 <211> 23
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:recombinant
 A6-derived peptide

<400> 50
 Met His Thr Leu Gln His Tyr Arg Asn Leu Cys Ser Tyr Gln Leu Ala
 1 5 10 15
 Asp Tyr Lys His Phe Asp Ile
 20

<210> 51
 <211> 23
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:recombinant
 A6-derived peptide

<400> 51
 Gly Leu Ser Gly Ser Arg Pro Asn Glu Gln Cys Asp Tyr Lys Thr Gly
 1 5 10 15
 Asp His Val Gln Phe Asp Ile
 20

<210> 52
 <211> 23
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:recombinant
 A6-derived peptide

<400> 52
 Leu Ser Gly Gln Asn Tyr Thr Lys Thr Arg Cys Leu Val Met Gln Asn
 1 5 10 15
 Asp Tyr Lys Met Phe Asp Ile
 20

<210> 53
 <211> 23
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:recombinant
 A6-derived peptide

<400> 53

Thr Ala Glu Pro Ala Leu Ser Pro Gln Ala Cys Met Thr Lys Glu Arg
 1 5 10 15

Gln Tyr Lys Asp Phe Asp Ile
 20

<210> 54

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:recombinant
 A6-derived peptide

<400> 54

Glu Thr Tyr Met Tyr Thr Arg Gly Lys Tyr Cys Arg Ala Leu Ser Ala
 1 5 10 15

Asp Tyr Lys Leu Phe Asp Ile
 20

<210> 55

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:recombinant
 A6-derived peptide

<400> 55

Glu Thr Tyr Met Tyr Thr Arg Gly Lys Tyr Cys Arg Ala Leu Ser Ala
 1 5 10 15

Asp Tyr Lys Leu Phe Asp Ile
 20

<210> 56

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:recombinant
 A6-derived peptide

<400> 56

Gly Ser Gln Ala Ile Lys Asn Leu Ser Glu Cys Leu Val Arg Ser Asp
 1 5 10 15

Asp Tyr Lys Lys Phe Asp Ile
 20

<210> 57
 <211> 23
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:recombinant
 A6-derived peptide

<400> 57
 Gly Arg Tyr Phe Gln Ser Lys Ile Thr Ser Cys Glu Asn Asn Asp Arg
 1 5 10 15

Asp Tyr Lys Leu Phe Asp Ile
 20

<210> 58
 <211> 23
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:recombinant
 A6-derived peptide

<400> 58
 Val Gln Tyr Gly Lys His Arg Arg Gly Ser Ser Ile Glu Val His Pro
 1 5 10 15

Glu Tyr Lys Asp Phe Asp Ile
 20

<210> 59
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 59
 gccaccacta gcttgtaatt g 21

<210> 60
 <211> 54
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:primer

<400> 60
 caattacaag aaagtgggtg cggactggtg caaccaggag gatccctgag actc 54